IN THE CLAIMS

PLEASE AMEND THE CLAIMS AS FOLLOWS:

1. (CANCELLED)

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5. (CURRENTLY AMENDED) A method for indicating viability of transplanted progenitor or stem cells grown in a culture, the method being performed with a medical device that supports at least one sensing function, the method comprising:

non-destructively observing a region of a patient to where progenitor or stem cells grown in a culture [cells] have been transplanted;

sensing a property within said region of a patient that is indicative of cell viability or [inviability] nonviability of transplanted progenitor or stem cells grown in a culture; and

using data from sensing said property within said region to indicate cell viability from a transplant of progenitor or stem cells grown in a culture within the region wherein said cell viability is indicated by a property in cell chemistry resulting from an event selected from the group consisting of cell activity, cell inactivity, cell growth, cell death, specific cell function, specific cell dysfunction, volumetric expansion of cell population, and volumetric decrease of cell population.

6. (CURRENTLY AMENDED) A method for indicating viability of transplanted progenitor or stem cells grown in a culture, the method being performed with a medical device that supports at least one sensing function, the method comprising:

non-destructively observing a region of a patient to where progenitor or stem cells grown in a culture [cells] have been transplanted;

sensing a property within said region of a patient that is indicative of cell viability or [inviability] nonviability of transplanted progenitor or stem cells grown in a culture;

and

using data from sensing said property within said region to indicate cell viability from a transplant of progenitor or stem cells grown in a culture within the region, wherein said non-destructively observing comprises magnetic resonance imaging and wherein said cell viability is indicated by a property in cell chemistry resulting from an event selected from the group consisting of cell activity, cell inactivity, cell growth, cell death, specific cell function, specific cell dysfunction, volumetric expansion of cell population, and volumetric decrease of cell population.

7. (CURRENTLY AMENDED) A method for indicating viability of transplanted progenitor or stem cells grown in a culture, the method being performed with a medical device that supports at least one sensing function, the method comprising:

non-destructively observing a region of a patient to where progenitor or stem cells grown in a culture [cells] have been transplanted;

sensing a property within said region of a patient that is indicative of cell viability or [inviability] nonviability of transplanted progenitor or stem cells grown in a culture; and

using data from sensing said property within said region to indicate cell viability from a transplant of progenitor or stem cells grown in a culture within the region wherein said property is monitored by observation of at least one parameter selected from the group consisting of local lactate levels, local glucose turnover, local phosphorous high-energy metabolite concentrations, local F-19 labeled metabolites, alterations in tissue sodium, and changes in the conversion rates of O_2 gas to H_2O water.

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9. (PREVIOUSLY PRESENTED) The method of claim 6 wherein said property is monitored by observation of at least one parameter selected from the group consisting of local lactate levels, local glucose turnover, local phosphorous high-energy metabolite concentrations, local F-19 labeled metabolites, alterations in tissue sodium, and changes in the conversion rates of O_2 gas to H_2O water.

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11. (CURRENTLY AMENDED) The method of claim 5 wherein said property is monitored by at least one technique selected from the group consisting of proton MR spectroscopy, monitoring of C-13 labeled glucose, monitoring by P-31 MR spectroscopy, monitoring of local F-19 labeled metabolites, monitoring of Na-23 levels, and monitoring of $17O_2$ gas conversion to H_217O water.

12. (CURRENTLY AMENDED) The method of claim 6 wherein said property is monitored by at least one technique selected from the group consisting of proton MR spectroscopy, monitoring of C-13 labeled glucose, monitoring by P-31 MR spectroscopy, monitoring of local F-19 labeled metabolites, monitoring of Na-23 levels, and monitoring of $17O_2$ gas conversion to H_217O water.

13. (PREVIOUSLY PRESENTED) The method of claim 5 wherein said medical device includes at least one element selected from the group consisting of a volume coil surrounding the tissue and a local multi-tuned MRI RF coil.

14. (PREVIOUSLY PRESENTED) The method of claim 6 wherein said medical device includes at least one element selected from the group consisting of a volume coil surrounding the tissue and a local multi-tuned MRI RF coil.

15. (ORIGINAL) The method of claim 9 wherein said medical device includes at least one element selected from the group consisting of a volume coil surrounding the tissue and a local multi-tuned MRI RF coil.

16. (ORIGINAL) The method of claim 12 wherein said medical device includes at least one element selected from the group consisting of a volume coil surrounding the tissue and a local multi-tuned MRI RF coil.

17. (CURRENTLY AMENDED) A method for indicating viability of transplanted progenitor or stem cells grown in a culture, the method being performed with a medical device that supports at least one sensing function, the method comprising:

non-destructively observing a region of a patient to where progenitor or stem cells grown in a culture [cells] have been transplanted;

sensing a property within said region of a patient that is indicative of cell viability or [inviability] nonviability of transplanted progenitor or stem cells grown in a culture; and

using data from sensing said property within said region to indicate cell viability from a transplant of progenitor or stem cells grown in a culture within the region wherein said property comprises blood flow or changes in blood flow as local vascular supply is developed.

18. (CURRENTLY AMENDED) The method of claim 17 wherein said non-destructively observing comprises magnetic resonance imaging and said property comprises blood flow or changes in blood flow as local vascular supply is developed.

19. (CURRENTLY AMENDED) The method of claim 17 wherein said property is monitored by observation of at least one parameter selected from the group consisting of local lactate levels, local glucose turnover, local phosphorous high-energy metabolite concentrations, local F-19 labeled metabolites, alterations in tissue sodium, and changes in the conversion rates of O_2 gas to H_2O water said property comprises blood flow or changes in blood flow as local vascular supply is developed.

20. (ORIGINAL) The method of claim 17 wherein blood flow or changes in blood flow are measured by observation of at least one material selected from the group consisting of labeled H_2O water, contrast-agent infusion of TI-shortening agents or T2*-shortening agents, local introduction of hyperpolarized Xenon gas, or optically-active coloring agents.

21. (ORIGINAL) The method of claim 18 wherein blood flow or changes in blood flow

are measured by observation of at least one material selected from the group consisting of labeled H_2O water, contrast-agent infusion of TI-shortening agents or T2*-shortening agents, local introduction of hyperpolarized Xenon gas, or optically-active coloring agents.

22. (ORIGINAL) The method of claim 19 wherein blood flow or changes in blood flow are measured by observation of at least one material selected from the group consisting of labeled H_2O water, contrast-agent infusion of TI-shortening agents or T2*-shortening agents, local introduction of hyperpolarized Xenon gas, or optically-active coloring agents.

23. (CURRENTLY AMENDED) A method for indicating viability of transplanted progenitor or stem cells grown in a culture, the method being performed with a medical device that supports at least one sensing function, the method comprising:

non-destructively observing a region of a patient to where progenitor or stem cells grown in a culture [cells] have been transplanted;

sensing a property within said region of a patient that is indicative of cell viability or [inviability] nonviability of transplanted progenitor or stem cells grown in a culture; and

using data from sensing said property within said region to indicate cell viability from a transplant of progenitor or stem cells grown in a culture within the region wherein said non-destructively observing comprises magnetic resonance imaging and said property comprises anisotropic water diffusion.

24. (PREVIOUSLY PRESENTED) The method of claim 5 wherein said property comprises the local concentrations of at least one of choline, NAA, GABA, phosphocholine, and creatine.

25. (PREVIOUSLY PRESENTED) The method of claim 6 wherein the property is selected from the group consisting of a) local tissue density and cell populations, b) local electrical activity, c) local oxygenated/deoxygenated hemoglobin and changes in the local

T2* reflecting the alterations in tissue oxygenation, d) changes in the vascular reserve and response to oxygenation stresses, e) tissue fluorescence and bioluminescence, f) tissue fluorescence and bioluminescence, g) electrical impedance, and h) local tissue temperature.

26. (ORIGINAL) The method of claim 1 wherein the property is selected from the group consisting of a) local tissue density and cell populations, b) local electrical activity, c) local oxygenated/deoxygenated hemoglobin and changes in the local T2* reflecting the alterations in tissue oxygenation, d) changes in the vascular reserve and response to oxygenation stresses, e) tissue fluorescence and bioluminescence, f) tissue fluorescence and bioluminescence, g) electrical impedance, and h) local tissue temperature.

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29. (CURRENTLY AMENDED) A method for indicating viability of transplanted progenitor or stem cells grown in a culture, said method being performed with a medical device that supports at least one sensing function comprising:

non-destructively observing a region of a patient to where progenitor or stem cells grown in a culture have been transplanted;

sensing a property within said region of a patient that is indicative of cell metabolism;

repeating or continuing said sensing of a property over a period of time in which said property changes; and

using data from sensing changes in said property within said region to indicate cell viability from a transplant of progenitor or stem cells grown in a culture within the region, wherein said data from sensing changes in said property indicates active metabolic function in transplanted cells, and wherein changes in said property are monitored by at least one technique selected from the group consisting of proton MR spectroscopy, monitoring of C-13 labeled glucose, monitoring by P-31 MR spectroscopy,

monitoring of local F-19 labeled metabolites, monitoring of Na-23 levels, and monitoring of $17O_2$ gas conversion to H_217O water.

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54. (NEW) The method of claim 5 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively.

55. (NEW) The method of claim 6 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively.

56. (NEW) The method of claim 7 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively.

57. (NEW) The method of claim 17 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively.

58. (NEW) The method of claim 19 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively .

59. (NEW) The method of claim 5 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively and said quantitative sensing is used to quantitate the viability of the implanted cells.

60. (NEW) The method of claim 6 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is

performed quantitatively and said quantitative sensing is used to quantitate the viability of the implanted cells.

61. (NEW) The method of claim 7 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively and said quantitative sensing is used to quantitate the viability of the implanted cells.

62. (NEW) The method of claim 17 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively and said quantitative sensing is used to quantitate the viability of the implanted cells.

63. (NEW) The method of claim 19 wherein the sensing of a property within said region of a patient that is indicative of cell viability or nonviability of the implanted cells is performed quantitatively and said quantitative sensing is used to quantitate the viability of the implanted cells.

64. (NEW) A method for indicating viability of transplanted progenitor or stem cells, the method being performed with a medical device that supports at least one sensing function, the method comprising:

non-destructively observing a region of a patient to where progenitor or stem cells have been transplanted;

sensing a property within said region of a patient that is indicative of cell viability or nonviability of transplanted progenitor or stem cells; and

using data from sensing said property within said region to indicate cell viability from a transplant of progenitor or stem cells within the region wherein said cell viability is indicated by a property in cell chemistry resulting from an event selected from the group consisting of cell activity, cell inactivity, cell growth, cell death, specific cell function, specific cell dysfunction, volumetric expansion of cell population, and volumetric decrease of cell population.